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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/522,852

01/28/2005

Jin-Wook Ha

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EXAMINER

KUGEL, TIMOTHY J

ART UNIT

PAPER NUMBER

1712

MAIL DATE

DELIVERY MODE

05/25/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/522,852

Applicant(s)

HA ET AL.

Examiner

Timothy J. Kugel

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☒ Claim(s) 1-4 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>01/28/05</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

1. Claims 1-4 are pending as filed on 28 January 2005.

Information Disclosure Statement

2. The information disclosure statement submitted on 28 January 2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner has considered the information disclosure statement.

Claim Objections

3. Claims 1-4 are objected to because of the following informalities: Claim 1 recites, "1.5 to 5 wt% spiropyran compound defined by Formula I and spirooxazine compound defined by Formula II" and should recite, "1.5 to 5 wt% of a spiropyran compound defined by Formula I and a spirooxazine compound defined by Formula II". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 USC 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-4 are rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the inclusion of a term within parentheses renders the claim indefinite because it is unclear whether the included term is part of the claimed invention. Claims 2-4 depend from claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 USC 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 US 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 USC 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 1-4 are rejected under 35 USC § 103(a) as being unpatentable over International Patent Application Publication WO 01/77723 (Nishizawa hereinafter) in view of US Patent 5,241,075 (Hibino hereinafter), applicant's admission and US Patent 4,636,561 (Hosoda hereinafter). US Patent 6,986,946 is an English language equivalent to Nishizawa and all references herein are taken therefrom.

Nishizawa teaches a coating composition and a plastic lens comprising said coating composition (Column 1 Lines 10-22) wherein the composition comprises 0.2 to

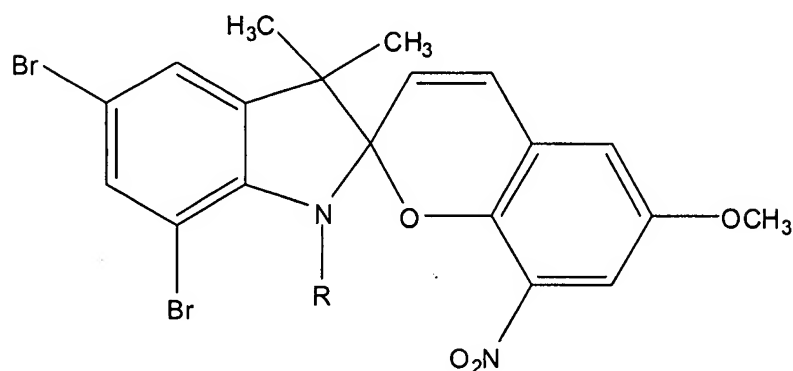
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5 percent of a photochromic dye (Column 5 Lines 38-45), an acryl polyol curing agent (Column 3 Lines 28-40), a polymer and a solvent—preferably the instantly claimed toluene such that the polymer concentration is 40 to 90 weight percent and the other, non-solvent components are a total of 0.3 to 10 percent—which means the concentration of toluene is between 0 and 59.7 percent (Column 5 Line 38 – Column 5 Line 10) —and further teaches a method of making a photochromic lens comprising applying said coating composition to one surface of a laminate and heat curing at 20 to 50°C (Column 5 Lines 58-60).

Regarding the instant limitation 60 to 65 weight percent toluene, It has been held that when the difference between a claimed invention and the prior art is the range or value of a particular variable, then a *prima facie* rejection is properly established when the difference in the range or value is minor—for which 0.3 to 5.3 weight percent, or 0.5 to 8.15 percent of the total range of weight percent toluene would qualify (*Titanium Metals Corp. of Am. v. Banner*, 778 F.2d 775, 783, 227 USPQ 773, 779 (Fed. Cir. 1985)) and generally, differences in ranges will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such ranges is critical (*In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) and *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969)).

Nishizawa does not disclose expressly the use of a photochromic spiropyran compound as described by Formula I.

Hibino discloses a photochromic spiropyran compound of the structure

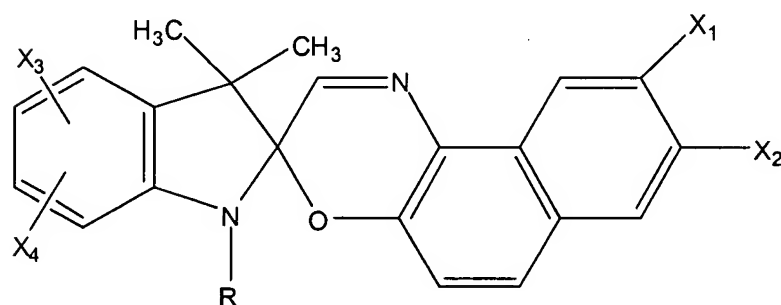


, which reads on the claimed spiropyran compound of Formula I when R is an alkyl group having from 1 to 30 carbon atoms (Column 1 Line 45 – Column 2 Line 2).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include the spiropyran compound of Hibino in the lens and composition of Nishizawa. The motivation to do so would have been to have sensitivity in a longer wavelength range than other photochromic spiropyran compounds. Further, applicant admits that the spiropyran compound of Formula I is a well-known photovisible compound in the art (Instant Specification Page 5 Lines 1-8).

Nishizawa does not disclose expressly the use of a photochromic spirooxazine compound as described by Formula II.

Hosoda discloses a photochromic spirooxazine compound of the structure



, which reads on the claimed

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spirooxazine compound of Formula II when R is a straight chain alkyl group having 1 to 30 carbon atoms; X₁ is a hydroxyl group; X₂ is a hydrogen atom; X₃ and X₄ are each a hydrogen atom, an alkyl group having from 1 to 3 carbon atoms, an alkoxy group having from 1 to 3 carbon atoms, a halogen atom, a nitro group or a cyano group and R₄ of the instant Formula II is a hydrogen atom (Abstract and Column 1 Line 40 – Column 2 Line 2).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include the photochromic spirooxazine compound of Hosoda in the composition and lens of Nishizawa. The motivation to do so would have been the compound's excellent color developability (Abstract and Column 1 Lines 43-49).

None of Nishizawa, Hibino or Hosoda discloses expressly the use of a combination of the spiropyran compound of Formula I and the spirooxazine compound of Formula II.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use a combination of the spiropyran compound of Formula I and the spirooxazine compound of Formula II since it has been held that it is *prima facie* obviousness to combine two components each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the same purpose. *In Re Kerkhoven*, 205 USPQ 1069, 1072 (CCPA 1980); and *Ex Parte Quadranti*, 25 USPQ2d 1071 (Bd. Pat. App. & Inter. 1992).

Conclusion

6. Regarding US Patent 5,166,345 (Akashi hereinafter), cited as an X-reference on the International Search Report for PCT/KR02/02251, from which the instant application is a national stage entry application under 35 USC §371:

Akashi fails to teach a spiropyran compound as defined by Formula I, and the spirooxazine compound disclosed fails to meet the definition of Formula II in that Akashi's spirooxazine fails to have the hydroxy, glycidoxy, amine or dichlorotrioxazinoxy group described as 'X' in Formula II of the instant claims and further Akashi's spirooxazine is required to have a polymerizable group or groups not defined in the instantly claimed Formula II. Akashi still further fails to teach the combined photochromic compounds of Formulas I and II in a coating composition further comprising toluene and an acryl-based binder and the proportions of each as instantly claimed.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Kugel whose telephone number is (571) 272-1460. The examiner can normally be reached 6:00 AM – 4:30 PM Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Timothy J. Kugel/
Patent Examiner, Art Unit 1712